Economics 105_____ Mike Lovell
Sign the pledge: November 6, 1996
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Quiz #2

PLEASE SHOW YOUR CALCULATIONS in order that you may be rewarded partial credit even if you should make a numerical slip.

I. Compare and Contrast: For three (only 3) of the following four pairs of concepts please: (a) define each term and (b) explain the similarities and differences between the two concepts.

1. balance sheet versus income statement.

2. net worth versus assets.

3. marginal revenue versus elasticity of demand.

4. monopolistic competition versus monopoly

I. Production Conditions:

1. A firm has production function $Q(L,K) = L + 2K^{0.5}$
   a. Is this production function homogeneous of degree 1? (Constant returns to scale) Explain why or why not.

   b. If labor costs $1.00 per hour and capital costs $2.00, what quantities of labor and capital would you employ in order to produce 9 units of output at the least cost? Explain.

2. A firm has total cost function $C(q) = 125 + q^3$.
   a. Then the average total cost function is:

   b. The marginal cost function is:

   c. The average variable cost function is:

III. Markets: The graph on the left below presents the cost curves of a representative peanut farm (for simplicity assume that all peanuts farms have the same cost functions).

1. Label the average total cost curve ATC, the average variable cost curve AVC, the marginal cost curve MC, and the demand curve DC.

2. Label the break even point BEP and the shut-down-point SDP. If the price were $3 per bushel, the representative profit maximizing farmer would produce _____ in the short run and _____ in the long run.

3. The graph on the right shows the demand curve for the industry. In long run competitive equilibrium the price will be ____, the quantity produced by the typical firm will be ____, and the industry output will be _____; there will be ____ firms (peanut farmers) in the industry.

4. If the government decides to support a "fair" price for peanuts of $6.00 per bushel by purchasing peanuts and placing them in stockpiles, how many tons of peanuts will the government have to purchase if no additional farmers are allowed to plant peanuts.

5. If instead of the price support program, suppose the government imposes a peanut farmer licensing fee of $1,000. How will this affect the price of peanuts and the number of farmers in the peanut industry in the long run?

Honor's Option: Prove for any production function Q(L,K) that the marginal product of labor equals the average product of labor at the point where the average product of labor is at a maximum